



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,815	01/07/2005	Kohshi Taguchi	2691-000013/US	2951

30593 7590 09/30/2005

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 8910
RESTON, VA 20195

EXAMINER

ABRAMOWITZ, HOWARD E

ART UNIT PAPER NUMBER

1762

DATE MAILED: 09/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/520,815

Applicant(s)

TAGUCHI ET AL.

Examiner

Howard E. Abramowitz

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/22/05 1/7/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Observations

Claim 2 recites that the substrate "is heated to room temperature to 800 °C" this is awkwardly worded however the examiner will take "room temperature to 800 °C" to be a range of temperatures.

Claim Rejections - 35 USC § 102

Claims 1-4 and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese patent No. 2000-212747 A ('747).

Referring to claims 1, 3 and 9, '747 discloses a method for forming a silicon nitride film comprising: accommodating a substrate in an internal space of a chamber (abstract), supplying hexamethyldisilazane gas and a nitrogen compound that is plasma excited to the chamber accommodating the substrate (abstract), depositing a reaction product of the hexamethyldisilazane and the gas including a nitrogen compound that is plasma excited on the substrate to form a silicon nitride film (abstract).

Referring to claim 2, '747 discloses that the substrate is heated to 300 °C (paragraph 28).

Referring to claims 4, 10 and 11 '747 discloses that the nitrogen compound is nitrogen gas (abstract).

Claims 5-8 and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsu et al. (Physical Review volume 33 number 10 pp. 7069-7076).

Referring to claims 5-8 and 12-14, Tsu et al. discloses an apparatus for forming a silicon nitride film on the surface of the substrate, comprising: a chamber in which the substrate is accommodated in its internal space; a first supplying means for supplying hexamethyldisilazane gas to the internal space of the chamber; a second gas supplying means for supplying gas including a nitrogen compound (ammonia or nitrogen gas) to the internal space of the chamber; and plasma excitation means that is provided in the second gas supplying means, for plasma exciting the gas including a nitrogen compound supplied to the internal space of the chamber. A heater is provided on the substrate support (figure 1).

While the first supplying means in Tsu et al. is used for silane and not hexamethyldisilazane "It is well settled that the intended uses of and the particular material used in a coating apparatus have no significance in determining patentability of apparatus claims." *Ex parte Thibault*, 164 U.S.P.Q. 666 (Bd. Pat. App. 1969).

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard E. Abramowitz whose telephone number is 571-272-8557. The examiner can normally be reached on monday-friday 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on 571-272-1423. The fax phone

Art Unit: 1762

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER